

## REMARKS

Claims 1-10 are pending.

Claims 1-4 and 10 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Claims 1 and 10 are amended by tying the claims to 'computer processor' in addition to the recited 'object' and 'background' as things falling under 35 USC 101 'machine' statutory category, such that it is readily apparent the operations of claim 1 could not be completely performed mentally, verbally or without a machine. Withdrawal of the rejection is requested.

Claims 1, 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smoot (US pat no 5,940,139) in view of Nelson (US pat no 6,775,381).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smoot '139 in view of Nelson '381 as applied to claim 1 further in view of O'Meara (US pat no 3,544,771).

Claim 4 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Smoot '139 in view of Nelson '381 as applied to claim 1 further in view of Rohr (US pub no 2002/0098435).

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smoot ('139) in view of Nelson '381 and Okazaki (US pat no 6,873,713).

Claim 8 is rejected under 35 U.S.C 103(a) as being unpatentable over Smoot ('139) in view of Nelson '381 and Okazaki '713 as applied to claim 5 further in view O'Meara '771.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smoot ('139) in view of Nelson '381 and Okazaki '713 as applied to claim 5 further in view Rohr '435.

The independent claims are 1, 5 and 10. The Office Action rejects claim 1 over Smoot and newly cited Nelson. Smoot requires two light sources 16 and 18 for illumination using visible light and infrared light, respectively. However, the visible light source 16 must illuminate both the object and the background as the second object, while the infrared light source 18 must illuminate only the background as the second object. In other words, Smoot requires the light sources 16 and 18 must always have a predetermined positional relationship with respect to the object and the background, in order for the visible light source 16 to illuminate both the object and the background as the second object, and for the infrared light source 18 to illuminate only the background as the second object. If any one of the object, the background and the light sources 16 and 18 moves, it may become impossible for the visible light source 16 to illuminate

both the object and the background and for the infrared light source 18 to illuminate only the background. Thus, it is readily apparent that Smoot fails to disclose, either expressly or implicitly, the language of claim 1, namely “a first image pickup step to ***pick up an image of an object*** positioned in front of a background ***using wavelengths in a visible light region***; a second image pickup step to ***pick up an image of the object positioned in front of the background using wavelengths in an infrared region.***” In other words, the language of claim 1 clearly requires two operations in relation to the target object, first “***using wavelengths in a visible light region***” and second “***using wavelengths in an infrared region.***” As discussed above, Smoot discusses the infrared light source 18 must ***only illuminate the background*** as the second object, which differs from the language of claim 1 “***pick up an image of the object ... using wavelengths in an infrared region.***” In other words, Smoot column 2, lines 53-55 provides:

The first object is illuminated with light having a first wavelength spectrum (such as visible light). The second object is illuminated with a combination of light having the first wavelength spectrum light and light having a second, different wavelength spectrum (such as infrared light).

So in Smoot the first object is not illuminated by the second light source 18. In addition, Smoot column 4, lines 6-7 provides “One or more second wavelength spectrum light sources 18 illuminate only the second object 14,” so the first object is not illuminated by the second light source 18. The Examiner Interview Summary of November 10, 2009 also relies upon Smoot column 4, lines 5-58 and FIG. 3, however, this description clearly identifies the 2<sup>nd</sup> object 14 or background being illuminated by the second light source 18 and the 1<sup>st</sup> object 12 not being illuminated by the second light source 18 (i.e., all areas of the scene that are not illuminated with IR are the darker areas including the 1<sup>st</sup> object 12). In contrast to Smoot, the language of claim 1 requires picking up an image of ***the object*** using both of wavelengths in ***a visible light region*** and in ***an infrared region***.

Regarding Nelson, column 2, lines 19-29 describes printing an image by an invisible ink or dye that is visible only at a predetermined wavelength. Nelson does not disclose, either expressly or implicitly, “***at least a surface of the background is formed by an organic dye***” in relation to image extraction of a target object positioned in front of the background as is recited in independent claim 1. Further, Nelson does not disclose, either expressly or implicitly, among other things, the first and second image pickup steps in relation to an object positioned in front of a background.

Even if one replaced the background of Smoot with a background including an organic dye, such a combination would still not achieve the present invention, because for the reasons discussed above Smoot does not illuminate the target object 12 by the infrared light source 18. In other words, a prima facie case of obviousness based upon Smoot and Nelson cannot be established, because nothing has been cited or found in Smoot and Nelson and there is no other evidence that it would be obvious to one of ordinary skill in the art to replace Smoot's 2<sup>nd</sup> object 14 with a background including organic dye as the 2<sup>nd</sup> object background and then further modify this combination by modifying Smoot's lighting scheme in which the visible light source 16 must illuminate both the target object and the background as the second object, while the infrared light source 18 must only illuminate the background as the second object to provide the language of claim 1 "a first image pickup step to ***pick up an image of an object*** positioned in front of a background ***using wavelengths in a visible light region***; a second image pickup step to ***pick up an image of the object ... using wavelengths in an infrared region***" and ***extract only the object based on the images picked up by the first and second image pickup steps, wherein at least a surface of the background is formed by an organic dye.***"

In addition for the reasons discussed in the previous response, O'Meara, Rohr, and Okazaki, fail to expressly or implicitly disclose the language of claim 1. Withdrawal of the rejection of claim 1 and allowance of claim 1 is requested.

Independent claim 5 requires limitations similar to the discussed limitations of amended claim 1. Claim 10 is amended to require **"using a computer processor *extracting the target object based on the captured first and second images of the target object using the visible light and the infrared light respectively.*"** and is patentably distinguishing over Smoot and Nelson for the reasons discussed above.

The remaining dependent claims inherit the patentable recitations of their respective base claims, and therefore, patentably distinguish over the cited art for the reasons discussed above in addition to the additional features recited therein.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,  
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